Space Weather Forecast

Issued on Saturday 9 November 2024 at 13:27 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Moderate solar activity is likely, with a slight chance of X-class flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with both peak and baseline X-Ray flux within Common-class levels in the past 24 hours.

There are currently eight sunspot regions on the visible disc. There are two large and complex regions present, one in the southeast, and another in the southwest. A moderately sized spot resides near centre disk but appears simple. A large but stable mature spot resides in the northwest. The remaining spot regions are smaller and more magnetically simple. Most spots have shown gradual decay or are stable.

No definitive Earth-directed CMEs (Coronal Mass Ejections) were observed, however several minor perturbations were observed on 08 Nov in the vicinity of two sunspots near centre-disc in the southern hemisphere. Although available solar imagery did not indicate any clear Earth-directed CMEs, some faint ejecta cannot be completely be discounted as having some Earth-directed trajectory.

Solar Wind / Geomagnetic Activity: Solar winds were indicative of magnetic cloud and perhaps coronal hole high speed stream influences. Wind speeds were between slightly elevated and background. The Interplanetary Magnetic Field was Moderate to Strong throughout, peaking around 09/0700 UTC. The north-south component, Bz, was mostly southward (negative) directed and Weak to Moderate. Resultant Geomagnetic Activity was Quiet to Active (Kp 2-4).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background levels through the period.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is forecast, with a likelihood of Moderate class flares and a slight chance of Strong class flares, most probably from either of the two large and complex spots on the disk.

Solar Wind / Geomagnetic Activity: No Earth-directed coronal mass ejections are currently forecast. Solar winds are currently Slightly Elevated due to ongoing coronal mass ejection and

---

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

perhaps coronal hole high speed stream influences. Slightly Elevated solar wind speeds are considered most likely, before easing on Day 2 (10 Nov). The HSS from CH88/+ may connect late Day 1 (09 Nov) or on Day 2 (10 Nov) until Day 3 (11 Nov), bringing Slightly Elevated to Elevated solar wind speeds if it does. Speeds should trend back towards background levels during Day 4 (12 Nov).

Generally Quiet to Unsettled (Kp1-3) activity is forecast but with Active (Kp4) intervals likely and a slight chance of peak G1/Minor Storm conditions, mainly between Days 1-3 (09-11 Nov) due to generally minor CME and HSS influence.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is at background levels. There is a rising slight chance of S1/Minor Proton Storms or greater as many the larger regions on the disk rotate into more geoeffective positions in the western hemisphere.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	**G1 to G2**	No	20	20	15	10
Strong	**G3**	No	1	1	1	1
Severe	**G4**	No	1	1	1	1
Extreme	**G5**	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**R1-R2 (M Class)**	No	60	60	60	60
Very Active	**R3-R5 (X Class)**	No	10	10	10	10

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**≥ S1**	No	10	15	15	20
Very Active	**≥ S3 ***	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.